

# Diseases and Prevention



# Diseases

- **What is a disease?**
- A disorder of structure or function in a human, animal, or plant, especially one that produces specific signs or symptoms or that affects a specific location. It is not simply a direct result of physical injury.
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- A disordered or incorrectly functioning organ, part, structure, or system of the body resulting from the effect of genetic or developmental errors, infection, poisons, nutritional deficiency or imbalance, toxicity, or unfavorable environmental factors; illness; sickness; ailment.

# The Concept of Diseases

The concept of disease is subject to social, cultural and economic influences that have varied over time: these influences have been particularly evident in the last two decades. During this time, we witnessed a growing tendency to classify states of being as diseases, a trend with important possible consequences, both positive and negative.

# The Concept of Diseases

**Possible positive consequences** include the facilitation of patient–physician communication and increased willingness to use public money and thus enhance equality in the distribution of limited resources.

**Possible adverse consequences** include making relatively healthy individuals perceive themselves as sick, encouraging misguided attempts to treat states that are part of the normal human condition, and individuals being denied employment or insurance. The extent to which health workers and the public have been influenced by these tendencies and their current perceptions remain uncertain.

# How Are Diseases Spread?

- A common way for infectious **diseases** to **spread** is through the direct transfer of bacteria, viruses or other germs from one person to another. This can occur when an individual with the bacterium or virus touches, coughs on or kisses someone who isn't infected.

# Bacteria or Bacterium

- *Bacteria* are microscopic living organisms, usually one-celled, that can be found everywhere. They can be dangerous, such as when they cause infection, or beneficial, as in the process of fermentation (such as in wine) and that of decomposition.

# Germs

“Germ”, while not a technical medical term, is a kind of catch-all phrase that refers to **any number of microbial organisms** — including viruses, bacteria, fungi and prions — which are pathogenic in nature. These illness-causing organisms exist in almost all settings, and are responsible for a great number of the illnesses that plague humans, plants and other animals.

Germs and bacteria are responsible for many of the illnesses that affect humans and other living organisms the world over.

# Parasites





# Parasites

A parasite is an organism that lives in another organism, called *the host*, and often harms it. It is dependent on its host for survival - it has to be in the host to live, grow and multiply. A parasite cannot live independently. Although a parasite rarely kills the host, in some cases it can happen. The parasite benefits at the expense of the host - the parasite uses the host to gain strength, and the host loses some strength as a result.

# How Diseases Are Spread

- [How Diseases Are Spread](#)

# Communicable Disease

An infectious disease transmissible (as from person to person) by direct contact with an affected individual or the individual's discharges or by indirect means (as by a vector)—compare [contagious disease](#)

# How do communicable diseases spread?

How these diseases spread depends on the specific disease or infectious agent. Some ways in which communicable diseases spread are by:

- physical contact with an infected person, such as through touch (staphylococcus), sexual intercourse (gonorrhea, HIV), fecal/oral transmission (hepatitis A), or droplets (influenza, TB)
- contact with a contaminated surface or object (Norwalk virus), food (salmonella, E. coli), blood (HIV, hepatitis B), or water (cholera);
- bites from insects or animals capable of transmitting the disease (mosquito: malaria and yellow fever; flea: plague); and
- travel through the air, such as tuberculosis or measles.

# List of Communicable Disease

- [Ebola](#)
- [Enterovirus D68](#)
- [Flu](#)
- [Hantavirus](#)
- [Hepatitis B](#)
- [HIV/AIDS](#)
- [Measles](#)
- [MRSA](#)
- [Pertussis](#)
- [Rabies](#)
- [Sexually Transmitted Disease](#)
- [Shigellosis](#)
- [Tuberculosis](#)
- [West Nile Virus](#)
- [Zika](#)

# Some Stats on CDs

- [http://www.hopkinsmedicine.org/healthlibrary/conditions/infectious\\_diseases/statistics\\_of\\_infectious\\_disease\\_85,P00650/](http://www.hopkinsmedicine.org/healthlibrary/conditions/infectious_diseases/statistics_of_infectious_disease_85,P00650/)

# Non Communicable Disease

- A **non-communicable disease** (NCD) is a medical condition or **disease** that is not caused by infectious agents (**non**-infectious or **non**-transmissible). NCDs can refer to chronic **diseases** which last for long periods of time and progress slowly. ... NCDs are the leading cause of death globally.

# Examples of NCDs

- **Examples of non-communicable diseases** include diabetes, Alzheimer's, cancer, osteoporosis, chronic lung **disease**, stroke, and heart **disease**. Almost four-fifths of all deaths from **non-communicable diseases** occur in developing countries.



# Four Main Types of NCDs

- The four main types of noncommunicable diseases are cardiovascular diseases (like heart attacks and stroke), cancer, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.

# Facts on NCDs

- **Key facts**
- Noncommunicable diseases (NCDs) kill 38 million people each year.
- Almost three quarters of NCD deaths - 28 million - occur in low- and middle-income countries.
- Sixteen million NCD deaths occur before the age of 70; 82% of these "premature" deaths occurred in low- and middle-income countries.
- Cardiovascular diseases account for most NCD deaths, or 17.5 million people annually, followed by cancers (8.2 million), respiratory diseases (4 million), and diabetes (1.5 million).
- These 4 groups of diseases account for 82% of all NCD deaths.
- Tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets all increase the risk of dying from an NCD.

# Who's At Risk?

- **Who is at risk of such diseases?**
- All age groups and all regions are affected by NCDs. NCDs are often associated with older age groups, but evidence shows that 16 million of all deaths attributed to noncommunicable diseases (NCDs) occur before the age of 70. Of these "premature" deaths, 82% occurred in low- and middle-income countries. Children, adults and the elderly are all vulnerable to the risk factors that contribute to noncommunicable diseases, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the effects of the harmful use of alcohol.

# Who's At Risk?

- These diseases are driven by forces that include ageing, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. For example, globalization of unhealthy lifestyles like unhealthy diets may show up in individuals as raised blood pressure, increased blood glucose, elevated blood lipids, and obesity. These are called 'intermediate risk factors' which can lead to cardiovascular disease, a NCD.

# Risk Factors

## **Modifiable behavioral risk factors (Things You Can Change)**

- Tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol increase the risk of NCDs.
- Tobacco accounts for around 6 million deaths every year (including from the effects of exposure to second-hand smoke), and is projected to increase to 8 million by 2030.
- About 3.2 million deaths annually can be attributed to insufficient physical activity. (1)
- More than half of the 3.3 million annual deaths from harmful drinking are from NCDs <sup>1</sup>.
- In 2010, 1.7 million annual deaths from cardiovascular causes have been attributed to excess salt/sodium intake. (2)

# Metabolic/physiological risk factors

- These behaviours lead to four key metabolic/physiological changes that increase the risk of NCDs: raised blood pressure, overweight/obesity, hyperglycemia (high blood glucose levels) and hyperlipidemia (high levels of fat in the blood).
- In terms of attributable deaths, the leading metabolic risk factor globally is elevated blood pressure (to which 18% of global deaths are attributed) (1) followed by overweight and obesity and raised blood glucose. Low- and middle-income countries are witnessing the fastest rise in overweight young children.

# What are the socioeconomic impacts of NCDs?

- Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to impede poverty reduction initiatives in low-income countries and areas:
  - increasing household costs associated with health care.
  - Vulnerable and socially disadvantaged people get sicker and die sooner
  - exposed to harmful products, such as tobacco or unhealthy food,
  - have limited access to health services.

# **What are the socioeconomic impacts of NCDs?**

- In many countries, harmful drinking and unhealthy diet and lifestyles occur both in higher and lower income groups. However, high-income groups can access services and products that protect them from the greatest risks while lower-income groups can often not afford such products and services.



# Prevention and control of NCDs

- To lessen the impact of NCDs on individuals and society, a comprehensive approach is needed that requires all sectors, including health, finance, foreign affairs, education, agriculture, planning and others, to work together to reduce the risks associated with NCDs, as well as promote the interventions to prevent and control them.

# Prevention and control of NCDs

- An important way to reduce NCDs is to focus on lessening the risk factors associated with these diseases. Low-cost solutions exist to reduce the common modifiable risk factors (mainly tobacco use, unhealthy diet and physical inactivity, and the harmful use of alcohol) and map the epidemic of NCDs and their risk factors.